

SEQUENCE LISTING

<110> HYBRIGENICS

<120> SID nucleic acids and polypeptides selected from a
pathogenic strain of the hepatitis C virus and
applications

<130> B4809A - JAZ

<140> U.S.

<141> 2001-07-27

<150> EP 00402225.7

<151> 2000-08-03

<160> 156

<170> PatentIn Ver. 2.1

<210> 1

<211> 50

<212> PRT

<213> Hepatitis C virus

<400> 1

Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys
1 5 10 15Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro Ile Pro Lys
20 25 30Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly Tyr Pro Trp
35 40 45Pro Leu
50

<210> 2

<211> 35

<212> PRT

<213> Hepatitis C virus

<400> 2

Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg
1 5 10 15Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala
20 25 30Gly Cys Ala
35

<210> 3

<211> 77

<212> PRT

<213> Hepatitis C virus

<400> 3

Asn Thr Asn Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln
 1 5 10 15

Ile Val Gly Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly
 20 25 30

Val Arg Ala Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg
 35 40 45

Arg Gln Pro Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala
 50 55 60

Gln Pro Gly Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly
 65 70 75

<210> 4

<211> 37

<212> PRT

<213> Hepatitis C virus

<400> 4

Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr
 1 5 10 15

Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe Val Leu Asn Asn Thr
 20 25 30

Arg Pro Pro Leu Gly
 35

<210> 5

<211> 150

<212> PRT

<213> Hepatitis C virus

<400> 5

Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile
 1 5 10 15

Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser
 20 25 30

Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu
 35 40 45

Thr Pro Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro
 50 55 60

Gly Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe
 65 70 75 80

Thr Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln
 85 90 95

Ser Gly Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys

100 105 110

Ala Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp Lys Cys
 115 120 125

Leu Ile Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu Tyr
 130 135 140

Arg Leu Gly Ala Val Gln
 145 150

<210> 6
 <211> 28
 <212> PRT
 <213> Hepatitis C virus

<400> 6
 Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr
 1 5 10 15

Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe Val
 20 25

<210> 7
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 <212> PRT
 <213> Hepatitis C virus

<400> 7
 Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val Cys Gly Pro
 1 5 10 15

Val Tyr Cys Phe Thr Pro Ser Pro Val Val
 20 25

<210> 8
 <211> 54
 <212> PRT
 <213> Hepatitis C virus

<400> 8
 Cys Val Val Ile Val Gly Arg Ile Val Leu Ser Gly Lys Pro Ala Ile
 1 5 10 15

Ile Pro Asp Arg Glu Val Leu Tyr Gln Glu Phe Asp Glu Met Glu Glu
 20 25 30

Cys Ser Gln His Leu Pro Tyr Ile Glu Gln Gly Met Met Leu Ala Glu
 35 40 45

Gln Phe Lys Gln Lys Ala
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<210> 9
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 <213> Hepatitis C virus

<400> 9
 Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr
 1 5 10 15
 Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu
 20 25 30
 Pro Gln Asp Ala Val Ser Arg Thr
 35 40

<210> 10
 <211> 28
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 <213> Hepatitis C virus

<400> 10
 Glu Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr
 1 5 10 15
 Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala
 20 25

<210> 11
 <211> 27
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 <213> Hepatitis C virus

<400> 11
 Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro
 1 5 10 15
 Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu
 20 25

<210> 12
 <211> 42
 <212> PRT
 <213> Hepatitis C virus

<400> 12
 Leu Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys Asn
 1 5 10 15
 Glu Val Phe Cys Val Gln Pro Glu Lys Gly Gly Arg Lys Pro Ala Arg
 20 25 30
 Leu Ile Val Phe Pro Asp Leu Gly Val Arg
 35 40

<210> 13
 <211> 28
 <212> PRT
 <213> Hepatitis C virus

<400> 13
 Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala
 1 5 10 15
 Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val
 20 25

<210> 14
 <211> 33
 <212> PRT
 <213> Hepatitis C virus

<400> 14
 Glu Arg Pro Tyr Cys Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val
 1 5 10 15
 Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro
 20 25 30
 Val

<210> 15
 <211> 31
 <212> PRT
 <213> Hepatitis C virus

<400> 15
 Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr
 1 5 10 15
 Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe Val Leu Asn Asn
 20 25 30

<210> 16
 <211> 77
 <212> PRT
 <213> Hepatitis C virus

<400> 16
 Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser
 1 5 10 15
 Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala
 20 25 30
 Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val Gly
 35 40 45

0967199-080204
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Cys Glu Val Leu
35

<210> 19
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 <213> Hepatitis C virus

<400> 19
 Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val Gly
 1 5 10 15
 Thr Thr Asp Arg Ser Gly Ala Pro Thr Tyr Ser Trp
 20 25

<210> 20
 <211> 45
 <212> PRT
 <213> Hepatitis C virus

<400> 20
 Pro Pro Leu Arg Ala Trp Arg His Arg Ala Arg Ser Val Arg Ala Arg
 1 5 10 15
 Leu Leu Ser Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr Leu Phe
 20 25 30
 Asn Trp Ala Val Arg Thr Lys Leu Lys Leu Thr Pro Ile
 35 40 45

<210> 21
 <211> 86
 <212> PRT
 <213> Hepatitis C virus

<400> 21
 Thr Ala Phe Val Gly Ala Gly Leu Ala Gly Ala Ala Ile Gly Ser Val
 1 5 10 15
 Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly
 20 25 30
 Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro
 35 40 45
 Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly
 50 55 60
 Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val
 65 70 75 80
 Gly Pro Gly Glu Gly Ala
 85

<210> 22
 <211> 43

<212> PRT
 <213> Hepatitis C virus

<400> 22
 Gly Ile Val Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr
 1 5 10 15
 Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr
 20 25 30
 Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe
 35 40

<210> 23
 <211> 63
 <212> PRT
 <213> Hepatitis C virus

<400> 23
 Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala
 1 5 10 15
 Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser Thr Glu Asp
 20 25 30
 Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val
 35 40 45
 Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly
 50 55 60

<210> 24
 <211> 29
 <212> PRT
 <213> Hepatitis C virus

<400> 24
 Glu Arg Pro Tyr Cys Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val
 1 5 10 15
 Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr
 20 25

<210> 25
 <211> 76
 <212> PRT
 <213> Hepatitis C virus

<400> 25
 Arg Arg His Trp Thr Thr Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly
 1 5 10 15
 His Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp Ser
 20 25 30

Pro Thr Ala Ala Leu Val Val Ala Gln Leu Leu Arg Ile Pro Gln Ala
 35 40 45

Ile Met Asp Met Ile Ala Gly Ala His Trp Gly Val Leu Ala Gly Ile
 50 55 60

Ala Tyr Phe Ser Met Val Gly Asn Trp Ala Lys Val
 65 70 75

<210> 26

<211> 37

<212> PRT

<213> Hepatitis C virus

<400> 26

Ala Ile Leu Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His
 1 5 10 15

Gln Trp Ile Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu
 20 25 30

Arg Asp Ile Trp Asp
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<210> 27

<211> 47

<212> PRT

<213> Hepatitis C virus

<400> 27

Val Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly
 1 5 10 15

Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp
 20 25 30

Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr
 35 40 45

<210> 28

<211> 53

<212> PRT

<213> Hepatitis C virus

<400> 28

Leu Pro Ala Pro Asn Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu
 1 5 10 15

Glu Tyr Val Glu Ile Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly
 20 25 30

Met Thr Thr Asp Asn Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu
 35 40 45

Phe Phe Thr Glu Leu

50

<210> 29
 <211> 112
 <212> PRT
 <213> Hepatitis C virus

<400> 29
 Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys
 1 5 10 15
 Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu
 20 25 30
 Leu Ala Ala Lys Leu Val Ala Leu Gly Ile Asn Ala Val Ala Tyr Tyr
 35 40 45
 Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val Val Val
 50 55 60
 Val Ser Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp Ser
 65 70 75 80
 Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu
 85 90 95
 Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu Pro Gln Asp Ala Val
 100 105 110

<210> 30
 <211> 54
 <212> PRT
 <213> Hepatitis C virus

<400> 30
 Val Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala
 1 5 10 15
 Val Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His
 20 25 30
 Val Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val
 35 40 45
 Thr Ala Ile Leu Ser Ser
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<210> 31
 <211> 102
 <212> PRT
 <213> Hepatitis C virus

<400> 31

Ala Ile Lys Ser Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro Leu Thr
 1 5 10 15

Asn Ser Arg Gly Glu Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly
 20 25 30

Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr Cys Tyr Ile Lys Ala
 35 40 45

Arg Ala Ala Cys Arg Ala Ala Gly Leu Gln Asp Cys Thr Met Leu Val
 50 55 60

Cys Gly Asp Asp Leu Val Val Ile Cys Glu Ser Ala Gly Val Gln Glu
 65 70 75 80

Asp Ala Ala Ser Leu Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser
 85 90 95

Ala Pro Pro Gly Asp Pro
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<210> 32

<211> 79

<212> PRT

<213> Hepatitis C virus

<400> 32

Leu Gln Val Leu Asp Ser His Tyr Gln Asp Val Leu Lys Glu Val Lys
 1 5 10 15

Ala Ala Ala Ser Lys Val Lys Ala Asn Leu Leu Ser Val Glu Glu Ala
 20 25 30

Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe Gly Tyr Gly
 35 40 45

Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val Ala His Ile Asn
 50 55 60

Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro Ile Asp
 65 70 75

<210> 33

<211> 61

<212> PRT

<213> Hepatitis C virus

<400> 33

Thr Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr
 1 5 10 15

Thr Thr Leu Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg
 20 25 30

Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu
 35 40 45

Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu
 50 55 60

<210> 34
 <211> 77
 <212> PRT
 <213> Hepatitis C virus

<400> 34
 Val Leu Asp Ser His Tyr Gln Asp Val Leu Lys Glu Val Lys Ala Ala
 1 5 10 15

Ala Ser Lys Val Lys Ala Asn Leu Leu Ser Val Glu Glu Ala Cys Ser
 20 25 30

Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe Gly Tyr Gly Ala Lys
 35 40 45

Asp Val Arg Cys His Ala Arg Lys Ala Val Ala His Ile Asn Ser Val
 50 55 60

Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro Ile Asp
 65 70 75

<210> 35
 <211> 26
 <212> PRT
 <213> Hepatitis C virus

<400> 35
 Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val Cys Gly
 1 5 10 15

Pro Val Tyr Cys Phe Thr Pro Ser Pro Val
 20 25

<210> 36
 <211> 37
 <212> PRT
 <213> Hepatitis C virus

<400> 36
 Pro Ile Ser Tyr Ala Asn Gly Ser Gly Leu Asp Glu Arg Pro Tyr Cys
 1 5 10 15

Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val
 20 25 30

Cys Gly Pro Val Tyr
 35

<210> 37

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<210> 58
<211> 137
<212> DNA
<213> Hepatitis C virus
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<210> 59
<211> 259
<212> DNA
<213> Hepatitis C virus
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<210> 60
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<212> DNA
<213> Hepatitis C virus
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<210> 61
<211> 191
<212> DNA
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<210> 62
<211> 89
<212> DNA
<213> Hepatitis C virus
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<210> 63
<211> 230
<212> DNA
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<400> 63
caggcgccac tggacgacgc aagactgcaa ttgttctatc tatcccggcc atataacggg 60
tcatacgcata qcatgggata tgatgatgaa ctggtcccct acggcagcgt tgggtggtagc 120
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tcagctgctc cggatcccac aagccatcat ggacatgac gctggtgctc actggggagt 180
cctggcgggc atagcgtatt tctccatggt ggggaactgg gcgaagggtcc 230

<210> 64
<211> 113
<212> DNA
<213> Hepatitis C virus

<400> 64
tgccatactc agcagcctca ctgtaaccca gctcctgagg cgactgcatc agtggataag 60
ctcggagtgt accactccat gtcctcggtc ctggctaagg gacatctggg act 113

<210> 65
<211> 142
<212> DNA
<213> Hepatitis C virus

<400> 65
tgtctccagg actcaacgcc ggggcaggac tggcaggggg aagccaggca tctatagatt 60
tgtggcaccg ggggagcgcc cctccggcat gttcgactcg tccgtcctct gtgagtgcta 120
tgacgcgggc tgtgcttggg at 142

<210> 66
<211> 162
<212> DNA
<213> Hepatitis C virus

<400> 66
ccttcctgcg ccgaactata agttcgcgct gtggaggggtg tctgcagagg aatacgtgga 60
gataaggcgg gtggggggact tccactacgt atcgggtatg actactgaca atcttaaag 120
cccgtgccag atcccatcgc ccgaattttt cacagaattg ga 162

<210> 67
<211> 337
<212> DNA
<213> Hepatitis C virus

<400> 67
cggagagatc cccttttacg gcaaggctat cccctcagag gtgatcaagg ggggaagaca 60
tctcatcttc tgccactcaa agaagaagtg cgacgagctc gcgcggaagc tggtcgcatt 120
gggcatcaat gccgtggcct actaccgcgg tcttgacgtg tctgtcatcc cgaccagcgg 180
cgatgttgct gtcgtgtcga ccgatgctct catgactggc tttaccggcg acttcgactc 240
tgtgatagac tgcaacacgt gtgtcactca gacagtcgat ttcagccttg accctacctt 300
taccattgag acaaccacgc tccccagga tgctgtc 337

<210> 68
<211> 163
<212> DNA
<213> Hepatitis C virus

<400> 68
ggtctgcgca gcaatactgc gccggcacgt tggcccgggc gagggggcag tgcaatggat 60
gaaccggcta atagccttcg cctcccgggg gaaccatgtt tccccacgc actacgtgcc 120
ggagagcgat gcagccgccc gcgtcactgc catactcagc agc 163

<210> 69
 <211> 309
 <212> DNA
 <213> Hepatitis C virus

<400> 69
 ggccatcaag tccctcactg agaggcttta tgttgggggc cctcttacca attcaagggg 60
 ggaaaactgc ggctaccgca ggtgccgcgc gagcggcgta ctgacaacta gctgtggtaa 120
 caccctcact tgctacatca aggcccgggc agcctgtcga gccgcagggc tccaggactg 180
 caccatgctc gtgtgtggcg acgacttagt cgttatctgt gaaagtgcgg ggggccagga 240
 ggacgcggcg agcctgagag ccttcacgga ggctatgacc aggtactccg ccccccccg 300
 ggaccccc 309

<210> 70
 <211> 240
 <212> DNA
 <213> Hepatitis C virus

<400> 70
 actgcaagtt ctggacagcc attaccagga cgtgctcaag gaggtcaaag cagcggcgctc 60
 aaaagtgaag gctaacttgc tatccgtaga ggaagcttgc agcctgacgc cccacattc 120
 agccaaatcc aagtttggct atggggcaaa agacgtccgt tgccatgcc aagaggccgt 180
 agccacatc aactccgtgt ggaaagacct tctggaagac agtgtaacac caatagacac 240

<210> 71
 <211> 184
 <212> DNA
 <213> Hepatitis C virus

<400> 71
 cactcagaca gtcgatttca gccttgaccc tacctttacc attgagacaa ccacgctccc 60
 ccaggatgct gtctccagga ctcaacgccg gggcaggact ggcaggggga agccaggcat 120
 ctatagattt gtggcaccgg gggagcgccc ctccggcatg ttcgactcgt ccgtcctctg 180
 tgag 184

<210> 72
 <211> 234
 <212> DNA
 <213> Hepatitis C virus

<400> 72
 agttctggac agccattacc aggacgtgct caaggaggtc aaagcagcgg cgtcaaaagt 60
 gaaggctaac ttgctatccg tagaggaagc ttgcagcctg acgccccac attcagccaa 120
 atccaagttt ggctatgggg caaaagacgt ccgttgccat gccagaaagg ccgtagccca 180
 catcaactcc gtgtggaaaag accttctgga agacagtgtg acaccaatag acac 234

<210> 73
 <211> 80
 <212> DNA
 <213> Hepatitis C virus

<400> 73
 ctacctcca agaccttgtg gcattgtgcc cgcaaagagc gtgtgtggcc cgttatattg 60
 cttcactccc agccccgtgg 80

<210> 74

<211> 112
 <212> DNA
 <213> Hepatitis C virus

<400> 74
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 tccaagacct tgtggcattg tgcccgc aaa gagcgtgtgt ggcccggtat at 112

<210> 75
 <211> 107
 <212> DNA
 <213> Hepatitis C virus

<400> 75
 cactgtaacc cagctcctga ggcgactgca tcagtggata agctcggagt gtaccactcc 60
 atgctccggg tcttggttaa gggacatctg ggactggata tgcgagg 107

<210> 76
 <211> 78
 <212> DNA
 <213> Hepatitis C virus

<400> 76
 gctcctgagg cgactgcac agtgataag ctccggagtgt accactccat gctccgggtc 60
 ctggctaagg gacatctg 78

<210> 77
 <211> 103
 <212> PRT
 <213> Hepatitis C virus

<400> 77
 Ala Cys Glu Cys Pro Gly Arg Ser Arg Arg Pro Cys Thr Met Ser Thr
 1 5 10 15
 Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn Arg Arg Pro
 20 25 30
 Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly Gly Val Tyr
 35 40 45
 Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys
 50 55 60
 Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro Ile Pro Lys
 65 70 75 80
 Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly Tyr Pro Trp
 85 90 95
 Pro Leu Tyr Gly Asn Glu Gly
 100

<210> 78
 <211> 113
 <212> PRT

TC2280.462365

<400> 78

Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala
35 40 45

Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
50 55 60

Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly
65 70 75 80

Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp
85 90 95

Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro
100 105 110

Arg

<210> 79

<211> 114

<212> PRT

<213> Hepatitis C virus

<400> 79

Ala Ile Leu His Thr Pro Gly Cys Val Pro Cys Val Arg Glu Gly Asn
1 5 10 15

Ala Ser Arg Cys Trp Val Ala Val Thr Pro Thr Val Ala Thr Arg Asp
20 25 30

Gly Lys Leu Pro Thr Thr Gln Leu Arg Arg His Ile Asp Leu Leu Val
35 40 45

Gly Ser Ala Thr Leu Cys Ser Ala Leu Tyr Val Gly Asp Leu Cys Gly
50 55 60

Ser Val Phe Leu Val Gly Gln Leu Phe Thr Phe Ser Pro Arg Arg His
65 70 75 80

Trp Thr Thr Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr
85 90 95

Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp Ser Pro Thr Ala
100 105 110

Ala Leu

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<400> 80
Gly Val Asp Ala Glu Thr His Val Thr Gly Gly Asn Ala Gly Arg Thr
  1                      5                      10                      15

Thr Ala Gly Leu Val Gly Leu Leu Thr Pro Gly Ala Lys Gln Asn Ile
      20                      25                      30

Gln Leu Ile Asn Thr Asn Gly Ser Trp His Ile Asn Ser Thr Ala Leu
      35                      40                      45

Asn Cys Asn Glu Ser Leu Asn Thr Gly Trp Leu Ala Gly Leu Phe Tyr
      50                      55                      60

Gln His Lys Phe Asn Ser Ser Gly Cys Pro Glu Arg Leu Ala Ser Cys
      65                      70                      75                      80

Arg Arg Leu Thr Asp Phe Ala Gln Gly Trp Gly
      85                      90

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<400>	81															
Trp	Gly	Pro	Ile	Ser	Tyr	Ala	Asn	Gly	Ser	Gly	Leu	Asp	Glu	Arg	Pro	
1				5					10					15		
Tyr	Cys	Trp	His	Tyr	Pro	Pro	Arg	Pro	Cys	Gly	Ile	Val	Pro	Ala	Lys	
			20					25					30			
Ser	Val	Cys	Gly	Pro	Val	Tyr	Cys	Phe	Thr	Pro	Ser	Pro	Val	Val	Val	
		35					40					45				
Gly	Thr	Thr	Asp	Arg	Ser	Gly	Ala	Pro	Thr	Tyr	Ser	Trp	Gly	Ala	Asn	
	50					55					60					
Asp	Thr	Asp	Val	Phe	Val	Leu	Asn	Asn	Thr	Arg	Pro	Pro	Leu	Gly	Asn	
65					70					75					80	
Trp	Phe	Gly	Cys	Thr	Trp	Met	Asn	Ser	Thr	Gly	Phe	Thr	Lys	Val	Cys	
				85					90					95		
Gly	Ala	Pro	Pro	Cys	Val	Ile	Gly	Gly	Val	Gly	Asn	Asn	Thr	Leu	Leu	
			100					105					110			
Cys	Pro	Thr	Asp	Cys	Phe	Arg	Lys	His	Pro	Glu	Ala	Thr	Tyr	Ser	Arg	
		115					120					125				
Cys	Gly	Ser	Gly	Pro	Trp	Ile	Thr	Pro	Arg	Cys	Met	Val	Asp	Tyr	Pro	
	130					135					140					
Tyr	Arg	Leu	Trp	His	Tyr	Pro	Cys	Thr	Ile	Asn	Tyr	Thr	Ile	Phe	Lys	
145					150					155					160	

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<210> 82
<211> 96
<212> PRT
<213> Hepatitis C virus
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<210> 83
<211> 278
<212> PRT
<213> Hepatitis C virus
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<400> 83  
Ala Ala Cys Gly Asp Ile Ile Asn Gly Leu Pro Val Ser Ala Arg Arg  
   1                               10                      15  
  
Gly Gln Glu Ile Leu Leu Gly Pro Ala Asp Gly Met Val Ser Lys Gly  
                20                        25              30  
  
Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ala Gln Gln Thr Arg Gly  
      35                                40                    45  
  
Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln  
    50                            55                  60  
  
Val Glu Gly Glu Val Gln Ile Val Ser Thr Ala Thr Gln Thr Phe Leu  
  65                          70                   75               80  
  
Ala Thr Cys Ile Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly  
          85                             90                     95
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<210> 84
<211> 158
<212> PRT
<213> Hepatitis C virus

<400> 84
Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Ile
  1                               5                               10                               15
Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ala Gly
                20                               25                               30
His Ala Val Gly Leu Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala
      35                               40                               45
Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu Gly Thr Thr Met Arg
      50                               55                               60
Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Ser
  65                               70                               75                               80
Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr

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<210> 85
<211> 263
<212> PRT
<213> Hepatitis C virus
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<400> 85																
Asp	Ser	Arg	Gly	Ser	Leu	Leu	Ser	Pro	Arg	Pro	Ile	Ser	Tyr	Leu	Lys	
1				5					10					15		
Gly	Ser	Ser	Gly	Gly	Pro	Leu	Leu	Cys	Pro	Ala	Gly	His	Ala	Val	Gly	
			20					25					30			
Leu	Phe	Arg	Ala	Ala	Val	Cys	Thr	Arg	Gly	Val	Ala	Lys	Ala	Val	Asp	
		35					40					45				
Phe	Ile	Pro	Val	Glu	Asn	Leu	Gly	Thr	Thr	Met	Arg	Ser	Pro	Val	Phe	
	50					55					60					
Thr	Asp	Asn	Ser	Ser	Pro	Pro	Ala	Val	Pro	Gln	Ser	Phe	Gln	Val	Ala	
65					70					75					80	
His	Leu	His	Ala	Pro	Thr	Gly	Ser	Gly	Lys	Ser	Thr	Lys	Val	Pro	Ala	
				85					90					95		
Ala	Tyr	Ala	Ala	Gln	Gly	Tyr	Lys	Val	Leu	Val	Leu	Asn	Pro	Ser	Val	
			100					105					110			
Ala	Ala	Thr	Leu	Gly	Phe	Gly	Ala	Tyr	Met	Ser	Lys	Ala	His	Gly	Val	
		115					120					125				
Asp	Pro	Asn	Ile	Arg	Thr	Gly	Val	Arg	Thr	Ile	Thr	Thr	Gly	Ser	Pro	
	130					135						140				
Ile	Thr	Tyr	Ser	Thr	Tyr	Gly	Lys	Phe	Leu	Ala	Asp	Gly	Gly	Cys	Ser	
145					150					155					160	
Gly	Gly	Ala	Tyr	Asp	Ile	Ile	Ile	Cys	Asp	Glu	Cys	His	Ser	Thr	Asp	
				165					170					175		
Ala	Thr	Ser	Ile	Leu	Gly	Ile	Gly	Thr	Val	Leu	Asp	Gln	Ala	Glu	Thr	
			180					185					190			
Ala	Gly	Ala	Arg	Leu	Val	Val	Leu	Ala	Thr	Ala	Thr	Pro	Pro	Gly	Ser	
		195					200					205				

Ala Ala

Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu
50 55 60

Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys
65 70 75 80

Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu Gly Ile Asn Ala Val
85 90 95

Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp
100 105 110

Val Val Val Val Ser Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp
115 120 125

Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp
130 135 140

Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu Pro Gln
145 150 155 160

Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys
165 170 175

Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly
180 185

<210> 89

<211> 158

<212> PRT

<213> Hepatitis C virus

<400> 89

Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu
1 5 10 15

Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu Pro Gln Asp Ala Val
20 25 30

Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile
35 40 45

Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser
50 55 60

Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu
65 70 75 80

Thr Pro Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro
85 90 95

Gly Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe
100 105 110

Thr Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln
115 120 125

Ser Gly Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys

1020000 2663650

140

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<400> 91
Thr Ser Thr Trp Val Leu Val Gly Gly Val Leu Ala Ala Leu Ala Ala
 1          5          10          15

Tyr Cys Leu Ser Thr Gly Cys Val Val Ile Val Gly Arg Ile Val Leu
 20          25          30

Ser Gly Lys Pro Ala Ile Ile Pro Asp Arg Glu Val Leu Tyr Gln Glu
 35          40          45

Phe Asp Glu
 50

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<210> 92
 <211> 18
 <212> PRT
 <213> Hepatitis C virus

<400> 92
 Ala Ala Leu Ala Ala Tyr Cys Leu Ser Thr Gly Cys Val Val Ile Val
 1 5 10 15

Gly Arg

<210> 93
 <211> 208
 <212> PRT
 <213> Hepatitis C virus

<400> 93
 Phe Thr Ala Ala Val Thr Ser Pro Leu Thr Thr Gly Gln Thr Leu Leu
 1 5 10 15

Phe Asn Ile Leu Gly Gly Trp Val Ala Ala Gln Leu Ala Ala Pro Gly
 20 25 30

Ala Ala Thr Ala Phe Val Gly Ala Gly Leu Ala Gly Ala Ala Ile Gly
 35 40 45

Ser Val Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly
 50 55 60

Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu
 65 70 75 80

Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser
 85 90 95

Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg
 100 105 110

His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile
 115 120 125

Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro
 130 135 140

Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr
 145 150 155 160

Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys
 165 170 175

Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile
 180 185 190

Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met
 195 200 205

002020 454.2560

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<400> 94
Thr Ala Phe Val Gly Ala Gly Leu Ala Gly Ala Ala Ile Gly Ser Val
  1          5          10          15
Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly
          20          25          30
Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro
          35          40          45
Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly
          50          55          60
Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val
  65          70          75          80
Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe
          85          90          95
Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro Glu Ser
          100          105          110
Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr Val Thr
          115          120          125
Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr
          130          135          140
Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile Cys Glu
  145          150          155          160
Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met Pro Gln
          165          170          175
Leu Pro Gly Ile Pro Phe Val Ser Cys Gln Arg Gly Tyr Arg Gly Val
          180          185          190
Trp Arg Gly Asp Gly Ile Met His Thr Arg Cys His Cys Gly Ala
          195          200          205

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<400> 95
Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu
1 5 10 15
Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser Thr Glu Asp Leu

20 25 30
 Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly
 35 40 45
 Val Val Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly
 50 55 60
 Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn
 65 70 75 80
 His Val Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg
 85 90 95
 Val Thr Ala Ile Leu Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg
 100 105 110
 Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser
 115 120 125
 Trp Leu Arg Asp Ile Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe
 130 135 140
 Lys Thr Trp Leu Lys Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro
 145 150 155 160
 Phe Val Ser Cys Gln Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly
 165 170 175
 Ile Met His Thr Arg Cys His Cys Gly Ala Glu Ile Thr Gly His Val
 180 185 190
 Lys Asn Gly Thr Met Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met
 195 200 205
 Trp Ser Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr
 210 215 220
 Pro
 225

<210> 96

<211> 145

<212> PRT

<213> Hepatitis C virus

<400> 96

Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile
 1 5 10 15

Met Ser Gly Glu Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro
 20 25 30

Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala
 35 40 45

Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met
 50 55 60

Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr
65 70 75 80

His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu
85 90 95

Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile
100 105 110

Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile
115 120 125

Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys
130 135 140

Ala
145

<210> 97

<211> 54

<212> PRT

<213> Hepatitis C virus

<400> 97

Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val
1 5 10 15

Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe
20 25 30

Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro Glu Ser
35 40 45

Asp Ala Ala Ala Arg Val
50

<210> 98

<211> 165

<212> PRT

<213> Hepatitis C virus

<400> 98

Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro Glu Ser
1 5 10 15

Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr Val Thr
20 25 30

Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr
35 40 45

Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile Cys Glu
50 55 60

Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met Pro Gln
65 70 75 80

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<210> 99
<211> 308
<212> PRT
<213> Hepatitis C virus

<400> 99
Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser
  1              5              10              15
Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser
              20              25              30
Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp
              35              40              45
Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala
  50              55              60
Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys Gln Arg
  65              70              75              80
Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr Arg Cys
              85              90              95
His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr Met Arg
              100             105             110
Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe Pro
              115             120             125
Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro Asn
              130             135             140
Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val Glu Ile
  145             150             155             160
Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp Asn
              165             170             175
Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu Leu
              180             185             190

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Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro Leu Leu
 195 200 205

Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro Val Gly
 210 215 220

Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr Ser
 225 230 235 240

Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg Arg
 245 250 255

Leu Ala Arg Gly Ser Pro Pro Ser Met Ala Ser Ser Ser Ala Ser Gln
 260 265 270

Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His Asp Ser
 275 280 285

Pro Asp Ala Glu Leu Ile Glu Ala Asn Leu Leu Trp Arg Gln Glu Met
 290 295 300

Gly Gly Asn Ile
 305

<210> 100

<211> 283

<212> PRT

<213> Hepatitis C virus

<400> 100

Leu Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp
 1 5 10 15

Ile Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp
 20 25 30

Ile Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu
 35 40 45

Lys Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys
 50 55 60

Gln Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr
 65 70 75 80

Arg Cys His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr
 85 90 95

Met Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr
 100 105 110

Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala
 115 120 125

Pro Asn Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val
 130 135 140

Glu Ile Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr

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145              150              155              160
Asp Asn Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr
              165              170              175
Glu Leu Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro
              180              185              190
Leu Leu Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro
              195              200              205
Val Gly Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu
              210              215              220
Thr Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly
225              230              235              240
Arg Arg Leu Ala Arg Gly Ser Pro Pro Ser Met Ala Ser Ser Ser Ala
              245              250              255
Ser Gln Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His
              260              265              270
Asp Ser Pro Asp Ala Glu Leu Ile Glu Ala Asn
              275              280
<210> 101
<211> 249
<212> PRT
<213> Hepatitis C virus
<400> 101
Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser
1              5              10              15
Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp
              20              25              30
Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala
              35              40              45
Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys Gln Arg
              50              55              60
Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr Arg Cys
65              70              75              80
His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr Met Arg
              85              90              95
Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe Pro
              100              105              110
Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro Asn
              115              120              125
Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val Glu Ile
130              135              140

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Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp Asn
 145 150 155 160

Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu Leu
 165 170 175

Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro Leu Leu
 180 185 190

Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro Val Gly
 195 200 205

Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr Ser
 210 215 220

Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg Arg
 225 230 235 240

Leu Ala Arg Gly Ser Pro Pro Ser Met
 245

<210> 102
 <211> 85
 <212> PRT
 <213> Hepatitis C virus

<400> 102
 Thr Trp Leu Lys Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe
 1 5 10 15

Val Ser Cys Gln Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile
 20 25 30

Met His Thr Arg Cys His Cys Gly Ala Glu Ile Thr Gly His Val Lys
 35 40 45

Asn Gly Thr Met Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp
 50 55 60

Ser Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro
 65 70 75 80

Leu Pro Ala Pro Asn
 85

<210> 103
 <211> 94
 <212> PRT
 <213> Hepatitis C virus

<400> 103
 Glu Ile Thr Gly His Val Lys Asn Gly Thr Met Arg Ile Val Gly Pro
 1 5 10 15

Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe Pro Ile Asn Ala Tyr
 20 25 30

<210> 106
 <211> 137
 <212> PRT
 <213> Hepatitis C virus

<400> 106
 Ser Trp Thr Gly Ala Leu Val Thr Pro Cys Ala Ala Glu Glu Gln Lys
 1 5 10 15
 Leu Pro Ile Asn Ala Leu Ser Asn Ser Leu Leu Arg His His Asn Leu
 20 25 30
 Val Tyr Ser Thr Thr Ser Arg Ser Ala Cys Gln Arg Gln Lys Lys Val
 35 40 45
 Thr Phe Asp Arg Leu Gln Val Leu Asp Ser His Tyr Gln Asp Val Leu
 50 55 60
 Lys Glu Val Lys Ala Ala Ala Ser Lys Val Lys Ala Asn Leu Leu Ser
 65 70 75 80
 Val Glu Glu Ala Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys
 85 90 95
 Phe Gly Tyr Gly Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val
 100 105 110
 Ala His Ile Asn Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr
 115 120 125
 Pro Ile Asp Thr Thr Ile Met Ala Lys
 130 135

<210> 107
 <211> 300
 <212> PRT
 <213> Hepatitis C virus

<400> 107
 Ala Asn Leu Leu Ser Val Glu Glu Ala Cys Ser Leu Thr Pro Pro His
 1 5 10 15
 Ser Ala Lys Ser Lys Phe Gly Tyr Gly Ala Lys Asp Val Arg Cys His
 20 25 30
 Ala Arg Lys Ala Val Ala His Ile Asn Ser Val Trp Lys Asp Leu Leu
 35 40 45
 Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys Asn Glu
 50 55 60
 Val Phe Cys Val Gln Pro Glu Lys Gly Gly Arg Lys Pro Ala Arg Leu
 65 70 75 80
 Ile Val Phe Pro Asp Leu Gly Val Arg Val Cys Glu Lys Met Ala Leu
 85 90 95

Tyr Asp Val Val Ser Lys Leu Pro Leu Ala Val Met Gly Ser Ser Tyr
 100 105 110
 Gly Phe Gln Tyr Ser Pro Gly Gln Arg Val Glu Phe Leu Val Gln Ala
 115 120 125
 Trp Lys Ser Lys Lys Thr Pro Met Gly Phe Ser Tyr Asp Thr Arg Cys
 130 135 140
 Phe Asp Ser Thr Val Thr Glu Ser Asp Ile Arg Thr Glu Glu Ala Ile
 145 150 155 160
 Tyr Gln Cys Cys Asp Leu Asp Pro Gln Ala Arg Val Ala Ile Lys Ser
 165 170 175
 Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro Leu Thr Asn Ser Arg Gly
 180 185 190
 Glu Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu Thr Thr
 195 200 205
 Ser Cys Gly Asn Thr Leu Thr Cys Tyr Ile Lys Ala Arg Ala Ala Cys
 210 215 220
 Arg Ala Ala Gly Leu Gln Asp Cys Thr Met Leu Val Cys Gly Asp Asp
 225 230 235 240
 Leu Val Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp Ala Ala Ser
 245 250 255
 Leu Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro Pro Gly
 260 265 270
 Asp Pro Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser Cys Ser
 275 280 285
 Ser Asn Val Ser Val Ala His Asp Gly Ala Gly Lys
 290 295 300

<210> 108
 <211> 199
 <212> PRT
 <213> Hepatitis C virus

<400> 108
 Glu Glu Ala Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe
 1 5 10 15
 Gly Tyr Gly Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val Ala
 20 25 30
 His Ile Asn Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro
 35 40 45
 Ile Asp Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro
 50 55 60
 Glu Lys Gly Gly Arg Lys Pro Ala Arg Leu Ile Val Phe Pro Asp Leu
 65 70 75 80

Gly Val Arg Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Lys
 85 90 95

Leu Pro Leu Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro
 100 105 110

Gly Gln Arg Val Glu Phe Leu Val Gln Ala Trp Lys Ser Lys Lys Thr
 115 120 125

Pro Met Gly Phe Ser Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr
 130 135 140

Glu Ser Asp Ile Arg Thr Glu Glu Ala Ile Tyr Gln Cys Cys Asp Leu
 145 150 155 160

Asp Pro Gln Ala Arg Val Ala Ile Lys Ser Leu Thr Glu Arg Leu Tyr
 165 170 175

Val Gly Gly Pro Leu Thr Asn Ser Arg Gly Glu Asn Cys Gly Tyr Arg
 180 185 190

Arg Cys Arg Ala Ser Gly Val
 195

<210> 109

<211> 260

<212> PRT

<213> Hepatitis C virus

<400> 109

Leu Leu Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys
 1 5 10 15

Asn Glu Val Phe Cys Val Gln Pro Glu Lys Gly Gly Arg Lys Pro Ala
 20 25 30

Arg Leu Ile Val Phe Pro Asp Leu Gly Val Arg Val Cys Glu Lys Met
 35 40 45

Ala Leu Tyr Asp Val Val Ser Lys Leu Pro Leu Ala Val Met Gly Ser
 50 55 60

Ser Tyr Gly Phe Gln Tyr Ser Pro Gly Gln Arg Val Glu Phe Leu Val
 65 70 75 80

Gln Ala Trp Lys Ser Lys Lys Thr Pro Met Gly Phe Ser Tyr Asp Thr
 85 90 95

Arg Cys Phe Asp Ser Thr Val Thr Glu Ser Asp Ile Arg Thr Glu Glu
 100 105 110

Ala Ile Tyr Gln Cys Cys Asp Leu Asp Pro Gln Ala Arg Val Ala Ile
 115 120 125

Lys Ser Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro Leu Thr Asn Ser
 130 135 140

Arg Gly Glu Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu

145 150 155 160
 Thr Thr Ser Cys Gly Asn Thr Leu Thr Cys Tyr Ile Lys Ala Arg Ala
 165 170 175
 Ala Cys Arg Ala Ala Gly Leu Gln Asp Cys Thr Met Leu Val Cys Gly
 180 185 190
 Asp Asp Leu Val Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp Ala
 195 200 205
 Ala Ser Leu Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro
 210 215 220
 Pro Gly Asp Pro Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser
 225 230 235 240
 Cys Ser Ser Asn Val Ser Val Ala His Asp Gly Ala Gly Lys Arg Val
 245 250 255
 Tyr Tyr Leu Thr
 260

<210> 110
 <211> 127
 <212> PRT
 <213> Hepatitis C virus
 <400> 110
 Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp Ala Ala Ser Leu Arg
 1 5 10 15
 Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro
 20 25 30
 Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser Asn
 35 40 45
 Val Ser Val Ala His Asp Gly Ala Gly Lys Arg Val Tyr Tyr Leu Thr
 50 55 60
 Arg Asp Pro Thr Thr Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg
 65 70 75 80
 His Thr Pro Val Asn Ser Trp Leu Gly Asn Ile Ile Met Phe Ala Pro
 85 90 95
 Thr Leu Trp Ala Arg Met Ile Leu Met Thr His Phe Phe Ser Val Leu
 100 105 110
 Ile Ala Arg Asp Gln Leu Glu Gln Ala Leu Asn Cys Glu Ile Tyr
 115 120 125

<210> 111
 <211> 89
 <212> PRT
 <213> Hepatitis C virus

<400> 111

Val Ser Val Ala His Asp Gly Ala Gly Lys Arg Val Tyr Tyr Leu Thr
 1 5 10 15

Arg Asp Pro Thr Thr Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg
 20 25 30

His Thr Pro Val Asn Ser Trp Leu Gly Asn Ile Ile Met Phe Ala Pro
 35 40 45

Thr Leu Trp Ala Arg Met Ile Leu Met Thr His Phe Phe Ser Val Leu
 50 55 60

Ile Ala Arg Asp Gln Leu Glu Gln Ala Leu Asn Cys Glu Ile Tyr Gly
 65 70 75 80

Ala Cys Tyr Ser Ile Glu Pro Leu Asp
 85

<210> 112

<211> 73

<212> PRT

<213> Hepatitis C virus

<400> 112

Leu His Gly Leu Ser Ala Phe Ser Leu His Ser Tyr Ser Pro Gly Glu
 1 5 10 15

Ile Asn Arg Val Ala Ala Cys Leu Arg Lys Leu Gly Val Pro Pro Leu
 20 25 30

Arg Ala Trp Arg His Arg Ala Arg Ser Val Arg Ala Arg Leu Leu Ser
 35 40 45

Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr Leu Phe Asn Trp Ala
 50 55 60

Val Arg Thr Lys Leu Lys Leu Thr Pro
 65 70

<210> 113

<211> 63

<212> PRT

<213> Hepatitis C virus

<400> 113

Ser Pro Gly Glu Ile Asn Arg Val Ala Ala Cys Leu Arg Lys Leu Gly
 1 5 10 15

Val Pro Pro Leu Arg Ala Trp Arg His Arg Ala Arg Ser Val Arg Ala
 20 25 30

Arg Leu Leu Ser Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr Leu
 35 40 45

Phe Asn Trp Ala Val Arg Thr Lys Leu Lys Leu Thr Pro Ile Ala

50

55

60

<210> 114
 <211> 310
 <212> DNA
 <213> Hepatitis C virus

<400> 114
 tgcttgcgag tgcctccggga ggtctcgtag accgtgcacc atgagcacga atcctaaacc 60
 tcaaagaaaa accaaacgta acaccaaccg tcgcccacag gacgtcaagt tcccgggtgg 120
 cggtcagatc gttggtggag tttacttgtt gccgcgcagg ggccctagat tgggtgtgcg 180
 cgcgacgagg aagacttccg agcggtcgca acctcgaggt agacgtcagc ctatcccaa 240
 ggacgtcgg cccgagggca ggacctgggc tcagcccggg tacccttggc ccctctatgg 300
 caatgagggg 310

<210> 115
 <211> 339
 <212> DNA
 <213> Hepatitis C virus

<400> 115
 atgagcacga atcctaaacc tcaaagaaaa accaaacgta acaccaaccg tcgcccacag 60
 gacgtcaagt tcccgggtgg cggtcagatc gttggtggag tttacttgtt gccgcgcagg 120
 ggccctagat tgggtgtgcg cgcgacgagg aagacttccg agcggtcgca acctcgaggt 180
 agacgtcagc ctatcccaa ggacgtcgg cccgagggca ggacctgggc tcagcccggg 240
 tacccttggc ccctctatgg caatgagggg tgcgggtggg cgggatggct cctgtctccc 300
 cgtggctctc ggccctagctg gggccccaca gacccccg 339

<210> 116
 <211> 345
 <212> DNA
 <213> Hepatitis C virus

<400> 116
 tgccatcctg cacactccgg ggtgtgtccc ttgcgttcgc gagggtaacg cctcgaggtg 60
 ttgggtggcg gtgaccccca cggtgccac cagggacggc aaactcccca caacgcagct 120
 tcgacgtcat atcgatctgc ttgtcgggag cgccaccctc tgctcgcccc tctacgtggg 180
 ggacctgtgc ggggtctgtct ttcttgttgg tcaactgttt accttctctc ccaggcgcca 240
 ctggacgacg caagactgca attgttctat ctatcccggc catataacgg gtcacgcgat 300
 ggcatgggat atgatgatga actggtcccc tacggcagcg ttggg 345

<210> 117
 <211> 276
 <212> DNA
 <213> Hepatitis C virus

<400> 117
 cggcgtcgac ggcgaaaccc acgtcaccgg gggaaatgcc ggccgcacca cggctgggct 60
 tgttgggtctc cttacaccag gcgccaagca gaacatccaa ctgatcaaca ccaacggcag 120
 ttggcacatc aatagcacgg ccttgaattg caatgaaagc cttaacaccg gctgggttagc 180
 agggctcttc tatcaacaca aattcaactc ttcaggctgt cctgagaggt tggccagctg 240
 ccgacgcctt accgattttg cccagggctg gggctcc 276

<210> 118
 <211> 531

<212> DNA
<213> Hepatitis C virus

<400> 118

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ctgggggtcct atcagttatg ccaacggaag cggcctcgac gaacgcccct actgctggca 60
ctaccctcca agaccttggt gcattgtgcc cgcaaagagc gtgtgtggcc cggatatattg 120
cttcaactccc agccccgtgg tgggtgggaac gaccgacagg tcgggcgcgc ctacctacag 180
ctgggggtgca aatgatacgg atgtcttcgt ccttaacaac accaggccac cgctgggcaa 240
ttggttcgggt tgtacctgga tgaactcaac tggattcacc aaagtgtgcg gagcgcccc 300
ttgtgtcatc ggaggggtgg gcaacaacac cttgctctgc cccactgatt gcttccgcaa 360
acatccggaa gccacatact ctccgtgctg ctccggtccc tggattacac ccagggtgcat 420
ggtcgactac ccgtataggg tttggcacta tccttgtagc atcaattaca ccatattcaa 480
agtcaggatg tacgtgggag gggtcgagca caggctggaa gcggcctgca a 531
```

<210> 119

<211> 289

<212> DNA

<213> Hepatitis C virus

<400> 119

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ctggcactac cctccaagac cttgtggcat tgtgcccga aagagcgtgt gtggcccgg 60
atattgcttc actcccagcc ccgtgggtgg gggaaacgacc gacaggctcg gcgcgcctac 120
ctacagctgg ggtgcaaagt atacggatgt cttcgtcctt aacaacacca ggccaccgct 180
gggcaattgg ttcggttgta cctggatgaa ctcaactgga ttcaccaaag tgtgcggagc 240
gcccccttgt gtcacggag ggggtgggaa caacaccttg ctctgcccc 289
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<210> 120

<211> 836

<212> DNA

<213> Hepatitis C virus

<400> 120

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gccgcgtgcg gtgacatcat caacggcttg cccgtctctg cccgtagggg ccaggagata 60
ctgcttgggc cagccgacgg aatggtctcc aaggggtgga ggttgctggc gccatcacg 120
gcgtacgccc agcagacgag aggcctccta ggggtgtataa tcaccagcct gaactggcgg 180
tgcaaaaaacc aagtggagg tgaagtccag atcgtgtcaa ctgctaccca aaccttcctg 240
tgcaacgtgca tcaatgggg atgctggact gtctaccacg gggccggaac gaggaccatc 300
gcatcaccca aggttcctgt catccagatg tataccaatg tggaccaaga ccttggtggc 360
tggcccgctc ctcaagggtt ccgctcattg acaccctgta cctgoggctc ctcgacctt 420
tacctgggtc cgaggcacgc cgatgtcatt cccgtgcgcc ggcgagggtga tagcaggggt 480
agcctgcttt cgccccggcc catttccctac ttgaaaggct cctcgggggg tccgctgttg 540
tgccccgcgg gacacgcctg gggcctattc agggccgcgg tgtgcacccg tggagtggct 600
aaagcgggtg actttatccc tgtggagaa ctagggacaa ccatgagatc cccggtgttc 660
acggacaact cctctccacc agcagtgcc cagagcttcc aggtggccca cctgcatgct 720
cccaccggca gcggtaaag caccaaggtc ccggtgctg acgcagccca gggctacaag 780
gtgttggtgc tcaaccctc tgttgctgca acgctgggct ttggtgctta catgtc 836
```

<210> 121

<211> 475

<212> DNA

<213> Hepatitis C virus

<400> 121

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gcgcggcgca ggtgatagca ggggtagcct gctttcgccc cggcccattt cctacttgaa 60
aggctcctcg gggggtccgc tgttgtgccc cgcgggacac gccgtgggccc tattcagggc 120
cgcggtgtgc acccgtagg tggctaaagc ggtggacttt atccctgtgg agaacctagg 180
gacaaccatg agatccccgg tgttcacgga caactcctc ccaccagcag tgccccagag 240
cttccagggt gccacactgc atgctccac cggcagcggg aagagcacca aggtcccggc 300
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tgcgtagcgca gccagggct acaagggtgtt ggtgctcaac ccctctgttg ctgcaacgct 360
gggcttttgtt gcttacatgt ccaaggccca tgggggttgat cctaatatca ggaccggggg 420
gagaacaatt accactggca gcccacacac gtactccacc tacggcaagt tcctt 475

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<210> 122

<211> 790

<212> DNA

<213> Hepatitis C virus

<400> 122

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tgatagcagg ggtagcctgc tttcgccccg gccattttcc tacttgaaag gtcctcggg 60
gggtccgctg ttgtgccccg cgggacacgc cgtgggccta ttcaggggcg cgggtgtgcac 120
ccgtggagtg gctaaagcgg tggactttat ccctgtggag aacctaggga caaccatgag 180
atccccgggtg ttcacggaca actcctctcc accagcagtg cccagagct tccagggtggc 240
ccacctgcat gctcccaccg gcagcggtaa gagcaccaag gtcccggctg cgtacgcagc 300
ccagggttac aagggtgttg tgctcaaccc ctctgttgct gcaacgctgg gctttggtgc 360
ttacatgtcc aaggcccatg gggttgatcc taatatcagg accggggtga gaacaattac 420
cactggcagc cccatcacgt actccaccta cggcaagttc cttgccgacg gcgggtgctc 480
aggaggtgct tatgacataa taatttgtga cgagtgcac tccacggatg ccacatccat 540
cttgggcatac ggcactgtcc ttgaccaagc agagactgcg ggggcgagac tggttgtgct 600
cgccactgct acccctccgg gctccgtcac tgtgtcccat cctaaccatcg aggaggttg 660
tctgtccacc accggagaga tcccccttta cggcaaggct atccccctcg aggtgatcaa 720
ggggggaaga catctcatct tctgccactc aaagaagaag tgcgacgagc tcgcccgcaa 780
gctggtcgca 790

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<210> 123

<211> 583

<212> DNA

<213> Hepatitis C virus

<400> 123

```

ggacaactcc tctccaccag cagtgcacca gagcttccag gtggcccacc tgcattgtcc 60
caccggcagc ggtaagagca ccaaggctcc ggctgcgtac gcagcccagg gctacaagg 120
gttgggtgctc aaccctctg ttgtgcaac gctgggcttt ggtgcttaca tgtccaaggc 180
ccatgggggtt gatcctaata tcaggaccgg ggtgagaaca attaccactg gcagccccat 240
cacgtactcc acctacggca agttccttgc cgacggcggg tgctcaggag gtgcttatga 300
cataataatt tgtgacgagt gccactccac ggatgccaca tccatcttgg gcatcggcac 360
tgtccttgac caagcagaga ctgccccggc gagactggtt gtgctcgcca ctgctacccc 420
tccgggctcc gtcactgtgt cccatcctaa catcgaggag gttgctctgt ccaccaccgg 480
agagatcccc ttttacggca aggtatccc cctcgagggt atcaaggggg gaagacatct 540
catcttctgc cactcaaaga agaagtgcga cgagctcgcc gcg 583

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<210> 124

<211> 617

<212> DNA

<213> Hepatitis C virus

<400> 124

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ccttgccgac ggcggggtgct caggaggtgc ttatgacata ataatttgtg acgagtgcc 60
ctccacggat gccacatcca tcttgggcat cggcactgtc cttgaccaag cagagactgc 120
gggggcgaga ctggttgtgc tcgccactgc taccctccg ggctccgtca ctgtgtccca 180
tcctaaccatc gaggaggttg ctctgtccac caccggagag atcccccttt acggcaaggc 240
tatccccctc gaggtgatca aggggggaag acatctcatc ttctgccact caaagaagaa 300
gtgcgacgag ctgcgcgca agctggtcgc attgggcatc aatgccgtgg cctactaccg 360
cggctcttgac gtgtctgtca tcccaccag cggcgatgtt gtcgtcgtgt cgaccgatgc 420
tctcatgact ggctttaccg gcgacttcga ctctgtgata gactgcaaca cgtgtgtcac 480
tcagacagtc gatttcagcc ttgaccctac ctttaccatt gagacaacca cgctccccc 540
ggatgctgtc tccaggactc aacgccgggg caggactggc aggggggaag caggcatcta 600

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tagattttgtg gcaccgg

617

<210> 125

<211> 559

<212> DNA

<213> Hepatitis C virus

<400> 125

```

ctccacggat gccacatcca tcttgggcat cggcactgtc cttgaccaag cagagactgc 60
ggggggcgaga ctggttgtgc tggccactgc taccctccg ggctccgtca ctgtgtccca 120
tcctaacatc gaggaggttg ctctgtccac caccggagag atccctttt acggcaaggc 180
tatcccccctc gaggtgatca aggggggaag acatctcatc ttctgccact caaagaagaa 240
gtgcgacgag ctgcgcgcga agctggtcgc attgggcac aatgccgtgg cctactaccg 300
cgggtcttgac gtgtctgtca tcccgaccag cggcgatgtt gtcgtcgtgt cgaccgatgc 360
tctcatgact ggctttaccg ggcacttcga ctctgtgata gactgcaaca cgtgtgtcac 420
tcagacagtc gatttcagcc ttgacctac ctttaccatt gagacaacca cgctccccc 480
ggatgctgtc tccaggactc aacgccgggg caggactggc agggggaagc caggcatcta 540
tagattttgtg gcaccgggg

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<210> 126

<211> 475

<212> DNA

<213> Hepatitis C virus

<400> 126

```

tgtgatagac tgcaacacgt gtgtcactca gacagtcat ttcagccttg accctacatt 60
taccattgag acaaccacgc tccccagga tgctgtctcc aggactcaac gccggggcag 120
gactggcagg gggaagccag gcactatag atttgtggca ccgggggagc gccctcccg 180
catgttcgac tgcctcgtcc tctgtgagt ctatgacgag ggctgtgctt ggtatgagct 240
cacgcccgc gagactacag ttaggctac agcgtacatg aacaccccg ggcttcccg 300
gtgccaggac catcttgaat ttggggagg cgtctttac ggctcactc atatatagtc 360
ccacttttta tcccagacaa agcagagtgg ggagaacttt ccttacctgg tagcgtacca 420
agccaccgtg tgcgctaggg ctcaagcccc tcccccatcg tgggaccaga tgtgg 475

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<210> 127

<211> 390

<212> DNA

<213> Hepatitis C virus

<400> 127

```

tagattttgtg gcaccggggg agcgcccctc cggcatgttc gactcgtccg tcctctgtga 60
gtgctatgac gggggctgtg cttgggtatga gctcacgccc gccgagacta cagttaggct 120
acgagcgtac atgaacaccc cggggcttcc cgtgtgccag gaccatcttg aattttggga 180
gggcgtcttt acgggcctca ctcatataga tgcccacttt ttatcccaga caaagcagag 240
tggggagaaac ttctcttacc tggtagcgta ccaagccacc gtgtgcgcta gggctcaagc 300
ccctccccc tctgtgggac agatgtggaa gtgtttgatc cgccttaaac ccaccctcca 360
tgggccaaca cccctgctat acagactggg

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390

<210> 128

<211> 155

<212> DNA

<213> Hepatitis C virus

<400> 128

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acgagcacct ggggtgctcgt tggcggcgctc ctggctgctc tggccgcgta ttgcctgtca 60
acaggctgcg tggctcatagt gggcaggatc gtctgtccg ggaagccggc aattatacct 120
gacagggagg ttctctacca ggagttcgat gagat

```

155

<210> 129
 <211> 56
 <212> DNA
 <213> Hepatitis C virus

<400> 129
 ggctgctctg gccgcgtatt gcctgtcaac aggctgctg gtcatagtgg gcagga 56

<210> 130
 <211> 625
 <212> DNA
 <213> Hepatitis C virus

<400> 130
 ttttacagct gccgtcacca gccactaac cactggccaa accctcctct tcaacatatt 60
 ggggggggtg gtggctgccc agctcgccgc ccccggtgcc gctactgcct ttgtgggtgc 120
 tggcctagct ggccgcgccca tcggcagcgt tggactgggg aaggctcctcg tggacattct 180
 tgcagggtat ggccgaggcg tggcgggagc tctttagtagca ttcaagatca tgagcgggtga 240
 ggtccctccc acggaggacc tggccaatct gctgcccgc atcctctcgc ctggagccct 300
 tgtagtcggt gtggtctgcg cagcaatact gcgcgggcac gttggcccgg gcgagggggc 360
 agtgcaatgg atgaaccggc taatagcctt cgccctcccg gggaaccatg tttccccac 420
 gcactacgtg ccggagagcg atgcagccgc ccgcgtcact gccatactca gcagcctcac 480
 tgttaaccag ctccctgaggc gactgcatca gtggataagc tcggagtgtg ccaactccatg 540
 ctccggttcc tggctaaggg acatctggga ctggatatgc gaggtgctga gcgactttaa 600
 gacctggctg aaagccaagc tcatg 625

<210> 131
 <211> 623
 <212> DNA
 <213> Hepatitis C virus

<400> 131
 tactgccttt gtgggtgctg gcctagctgg cgccgccatc ggcagcgttg gactggggaa 60
 ggtcctcgtg gacattcttg cagggtatgg cgccggcgctg gcgggagctc ttgtagcatt 120
 caagatcatg agcggtgagg tcccctccac ggaggacctg gtcaatctgc tgcccgccat 180
 cctctcgcct ggagcccttg tagtcggtgt ggtctgcgca gcaatactgc gccggcacgt 240
 tggcccgggc gagggggcag tgcaatggat gaaccggcta atagccttcg cctcccgggg 300
 gaaccatgtt tccccacgc actacgtgcc ggagagcgat gcagccgccc gcgtcactgc 360
 catactcagc agcctcactg taaccagct cctgaggcga ctgcatcagt ggataagctc 420
 ggagtgtacc actccatgct ccggttcctg gctaaggagc atctgggact ggatatgcga 480
 ggtgctgagc gactttaaga cctggctgaa agccaagctc atgccacaac tgctgggat 540
 tccctttgtg tcctgccagc gcgggtatag gggggtctgg cgaggagacg gcattatgca 600
 cactcgctgc cactgtggag ctg 623

<210> 132
 <211> 678
 <212> DNA
 <213> Hepatitis C virus

<400> 132
 cctcgtggac attcttgca ggtatggcgc gggcgtggcg ggagctcttg tagcattcaa 60
 gatcatgagc ggtgaggtcc cctccacgga ggacctggtc aatctgctgc ccgccatcct 120
 ctgcctgga gcccttgtag tcggtgtggt ctgcgcagca atactgcgc gccacgttg 180
 ccggggcgag ggggcagtg aatggatgaa ccggctaata gccttcgcct ccgggggaa 240
 ccatgtttcc cccacgcact acgtgccgga gagcgatgca gccgccgcgc tcaactgcat 300
 actcagcagc ctcactgtaa cccagctcct gaggcgactg catcagtga taagctcgga 360


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gtgtaccact ccatgctccg gttcctggct aagggacatc tgggactgga tatgcgaggt 420
gctgagcgac tttaagacct ggctgaaagc caagctcatg ccacaactgc ctgggattcc 480
ctttgtgtcc tgccagcgcg ggtatagggg ggtctggcga ggagacggca ttatgcacac 540
tcgctgccac tgtggagctg agatcactgg acatgtcaaa aacgggacga tgaggatcgt 600
cggtcctagg acctgcagga acatgtggag tgggacgttc cccattaacg cctacaccac 660
gggccctgt actccctt                                     678

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<210> 133
 <211> 436
 <212> DNA
 <213> Hepatitis C virus

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<400> 133
tgcagggtat ggcgcgggagc tggcgggagc tcttgtagca ttcaagatca tgagcgggtga 60
ggteccctcc acggaggacc tgggtcaatct gctgcccgcc atcctctcgc ctggagccct 120
tgtagtcggg gtgggtctgcg cagcaatact gcgcgggcac gttggcccg gcgagggggc 180
agtgaatgga atgaaccggc taatagcctt cgctcccg ggaaccatg tttccccac 240
gcactacgtg ccggagagcg atgcagccgc ccgcgtcact gccatactca gcagcctcac 300
tgtaaccag ctccctgaggc gactgcatca gtggataagc tcggagtgtg cactccatg 360
ctccgggtcc tggctaaggg acatctggga ctggatatgc gaggtgctga gcgactttaa 420
gacctggctg aaagcc                                     436

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<210> 134
 <211> 164
 <212> DNA
 <213> Hepatitis C virus

```

<400> 134
agcccttgta gtcgggtgtg tctgcgcagc aatactgcgc cggcacgttg gcccgggcga 60
gggggcagtg caatggatga accggctaata agccttcgcc tcccggggga accatgtttc 120
ccccacgcac tacgtgcccg agagcgatgc agccgcccgc gtca                                     164

```

<210> 135
 <211> 496
 <212> DNA
 <213> Hepatitis C virus

```

<400> 135
cgctcccg ggaaccatg tttccccac gcactacgtg ccggagagcg atgcagccgc 60
ccgcgtcact gccatactca gcagcctcac tgtaaccag ctccctgaggc gactgcatca 120
gtggataagc tcggagtgtg cactccatg ctccgggtcc tggctaaggg acatctggga 180
ctggatatgc gaggtgctga ggcactttaa gacctggctg aaagccaagc tcatgccaca 240
actgcctggg attccctttg tgcctgccca gcgcgggtat aggggggtct ggcgaggaga 300
cggcattatg cacactcgct gccactgtgg agctgagatc actggacatg tcaaaaacgg 360
gacgatgagg atcgtcggtc ctaggacctg caggaacatg tggagtggga cgttcccat 420
taacgcctac accacgggac cctgtactcc ccttccctgc ccgaactata agttcgcgct 480
gtggagggtg tctgca                                     496

```

<210> 136
 <211> 926
 <212> DNA
 <213> Hepatitis C virus

```

<400> 136
tacgtgcggg agagcgatgc agccgcccgc gtcactgcc tactcagcag cctcactgta 60
accagctcc tgaggcgact gcatcagtgg ataagctcgg agtgtaccac tccatgctcc 120
ggttcctggc taaggacat ctgggactgg atatgcgagg tgctgagcga cttaagacc 180

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tggtctgaaag ccaagctcat gccacaactg cctgggattc cctttgtgtc ctgccagcgc 240
gggtataggg gggtctggcg aggagaacgc attatgcaca ctgcctgcca ctgtggagct 300
gagatcactg gacatgtcaa aaacgggacg atgaggatcg tcggtcctag gacctgcagg 360
aacatgtgga gtgggacgtt ccccatatac gcctacacca cggggccctg tactccccctt 420
cctgcgcgca actataagtt cgcgtgtgtg aggggtgtctg cagaggaata cgtggagata 480
aggcgggtgg gggacttcca ctacgtatcg ggtatgacta ctgacaatct taaatgcccg 540
tgccagatcc catcgccgga atttttcaca gaattggacg ggggtgcgcct acacagggtt 600
gccccccctt gcaagccctt gctgcgggag gaggtatcat tcagagtagg actccacgag 660
taccgggtgg ggtcgcaatt acctgctgag cccgaaccgg acgtagccgt gttgacgtcc 720
atgctcactg atccctccca tataacagca gaggcggccg ggagaagggtt ggcgagaggg 780
tcacccccctt ctatggccag ctccctcggc agccagctgt ccgctccatc tctcaaggca 840
acttgcaccg ccaaccatga ctccctgac gccagactca tagaggctaa cctcctgtgg 900
aggcaggaga tgggcggcaa catcac

```

<210> 137

<211> 850

<212> DNA

<213> Hepatitis C virus

<400> 137

```

actcagcagc ctcaactgtaa cccagctcct gaggcgactg catcagtggg taagctcgga 60
gtgtaccact ccatgctccg gttcctggct aaggacatc tgggactgga tatgagaggt 120
gctgagcgac tttaagacct ggctgaaagc caagctcatg ccacaactgc ctgggattcc 180
ctttgtgtcc tgccagcgcg ggtatagggg ggtctggcga ggagacggca ttatgcacac 240
tcgctgccac tgtggagctg agatcactgg acatgtcaaa aacgggacga tgaggatcgt 300
cggctcctagg acctgcagga acatgtggag tgggacgttc cccattaacg cctacaccac 360
ggggccctgt actcccttc ctgcgccgaa ctataagttc gcgctgtgga ggggtgtctgc 420
tagaggaatac gtggagataa ggcggtggg ggacttccac tacgtatcgg gtatgactac 480
tgacaatctt aaatgcccgt gccagatccc atcgcccgaa tttttcacag aattggacgg 540
gggtgcgcta cacagggttg cgcccccttg caagcccttg ctgcgggagg aggtatcatt 600
cagagttaga ctccacgagt acccggtggg gtgcgaatta ccttgcgagc ccgaaccgga 660
cgtagccgtg ttgacgtcca tgctcactga tccctcccat ataacagcag aggcggccgg 720
gagaagggtt gcgagagggg caccoccttc tatggccagc tccctggcta gccagctgtc 780
cgctccatct ctcaaggcaa cttgcaccgc caacctgac tccctgacg ccgagctcat 840
tagaggctaac

```

<210> 138

<211> 749

<212> DNA

<213> Hepatitis C virus

<400> 138

```

cagcctcact gtaaccacgc tccctgagggc actgcatcag tggataagct cggagtgtac 60
cactccatgc tccggttccg ggctaaggga catctgggac tggatatgcg aggtgctgag 120
cgactttaag acctggctga aagccaagct catgccacaa ctgcctggga ttccctttgt 180
gtcctgccag cgcgggtata ggggggtctg gcgaggagac ggcattatgc aactcgcgtg 240
ccactgtgga gctgagatca ctggacatgt caaaaacggg acgatgagga tcgtcgggtcc 300
taggacctgc aggaacatgt ggagtgggac gttccccatt aacgcctaca ccacgggccc 360
ctgtactccc cttcctgcgc cgaactataa gttcgcgctg tggagggtgt ctgcagagga 420
atacgtggag ataaggcggg tgggggactt ccactacgta tcgggtatga ctactgacaa 480
tcttaaatgc ccgtgccaga tcccatcgcc cgaatttttc acagaattgg acggggtgcg 540
cctacacagg tttgcgcccc cttgcaagcc cttgctgcgg gaggaggtat cattcagagt 600
aggactccac gagtaccggg tggggtcgca attaccttgc gagcccgaac cggacgtagc 660
cgtgttgacg tccatgctca ctgatccctc ccatataaca gcagaggcgg ccgggagaa 720
gttggcgaga gggtcacccc cttctatgg

```

<210> 139

<211> 257

<400>	143						
ttcctggaca	ggcgcactcg	tcaccccg	cgctgcggaa	gaacaaaaac	tgcccatcaa	60	
cgactgagc	aactcggttc	tacgccatca	caatctggtg	tattccacca	cttcacgcag	120	
tgcttgccaa	aggcagaaga	aagtcacatt	tgacagactg	caagttctgg	acagccatta	180	
ccaggacgtg	ctcaaggagg	tcaaagcagc	ggcgtcaaaa	gtgaaggcta	acttgctatc	240	
cgtagaggaa	gcttgagcc	tgacgcccc	acattcagcc	aaatccaagt	ttggctatgg	300	
ggcaaaagac	gtccgttgcc	atgccagaaa	ggccgtagcc	cacatcaact	ccgtgtggaa	360	

agaccttctg gaagacagtg taacaccaat agacactacc atcatggcca ag

412

<210> 144

<211> 903

<212> DNA

<213> Hepatitis C virus

<400> 144

```

ggctaacttg ctatccgtag aggaagcttg cagcctgacg cccccacatt cagccaaatc 60
caagtttggc tatgggggcaa aagacgtccg ttgccatgcc agaaaggccg tagcccacat 120
caactccgtg tggaaagacc ttctggaaga cagtgttaaca ccaatagaca ctaccatcat 180
ggccaagaac gaggttttct gcgttcagcc tgagaagggg ggtagtaagc cagctcgtct 240
catcgtgttc ccgacactgg gcgtgcgcgt gtgcgagaag atggccctgt acgacgtgg 300
tagcaagctc cccctggccg tgatgggaag ctctacgga ttccaatact caccaggaca 360
gcgggttgaa ttctctgtgc aagcgtggaa gtccaagaag acccgatgg ggttctcgt 420
tgataccgcg tgttttgact ccacagtcac tgagagcgac atccgtacgg aggaggcaat 480
ttaccaatgt tgtgacctgg accccaagc ccgcgtggcc atcaagtccc tactgagag 540
gctttatgtt gggggccctc ttaccaattc aaggggggaa aactgcggct accgcaggtg 600
ccgcgcgagc ggcgtagtga caactagctg tggtaacacc ctacttgct acatcaaggc 660
ccgggcagcc tgtcgagccg cagggctcca ggactgcacc atgctcgtgt gtggcgacga 720
cttagtcgtt atctgtgaaa gtgcgggggt ccaggaggac gcggcgagcc tgagagcctt 780
cacggaggct atgaccaggt actcgcgcc ccccggggac cccccacaac cagaatacga 840
cttgagcgtt ataacatcat gtcctccaa cgtgtcagtc gccacgacg gcgctggaaa 900
gag

```

903

<210> 145

<211> 600

<212> DNA

<213> Hepatitis C virus

<400> 145

```

agaggaagct tgcagcctga cgcacccaca ttcagccaaa tccaagtttg gctatggggc 60
aaaagacgtc cgttgccatg ccagaaaggc cgtagcccac atcaactccg tgtggaaaga 120
ccttctggaa gacagtgtaa caccaataga cactaccatc atggccaaga acgaggtttt 180
ctgcgttcag cctgagaagg ggggtcgtaa gccagctcgt ctcatcgtgt tccccgacct 240
gggcgtgcgc gtgtgcgaga agatggccct gtacgacgtg gttagcaagc tccccctggc 300
cgtgatggga agctcctacg gattccaata ctaccagga cagcgggttg aattcctcgt 360
gcaagcgtgg aagtccaaga agaccccgat ggggttctcg tatgataccc gctgttttga 420
ctccacagtc actgagagcg acatccgtac ggaggaggca atttaccaat gttgtgacct 480
ggacccccaa gccgcgctgg ccatcaagtc cctcactgag aggctttatg ttggggggccc 540
tcttaccaat tcaagggggg aaaactgcgg ctaccgcagg tgccgcgcga gcggcgctact 600

```

<210> 146

<211> 781

<212> DNA

<213> Hepatitis C virus

<400> 146

```

ccttctggaa gacagtgtaa caccaataga cactaccatc atggccaaga acgaggtttt 60
ctgcgttcag cctgagaagg ggggtcgtaa gccagctcgt ctcatcgtgt tccccgacct 120
gggcgtgcgc gtgtgcgaga agatggccct gtacgacgtg gttagcaagc tccccctggc 180
cgtgatggga agctcctacg gattccaata ctaccagga cagcgggttg aattcctcgt 240
gcaagcgtgg aagtccaaga agaccccgat ggggttctcg tatgataccc gctgttttga 300
ctccacagtc actgagagcg acatccgtac ggaggaggca atttaccaat gttgtgacct 360
ggacccccaa gccgcgctgg ccatcaagtc cctcactgag aggctttatg ttggggggccc 420
tcttaccaat tcaagggggg aaaactgcgg ctaccgcagg tgccgcgcga gcggcgctact 480
gacaactagc tgtggtaaca ccctcacttg ctacatcaag gcccgggcag cctgtcgagc 540
cgcagggctc caggactgca ccatgctcgt gtgtggcgac gacttagtcg ttatctgtga 600

```

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aagtgcgggg gtccaggagg acgcggcgag cctgagagcc ttcacggagg ctatgaccag 660
gtactccgcc ccccccgagg acccccacaca accagaatac gacttggagc ttataacatc 720
atgctcctcc aacgtgtcag tcgcccacga cggcgctgga aagaggggtct actaccttac 780
c 781

```

```

<210> 147
<211> 382
<212> DNA
<213> Hepatitis C virus

```

```

<400> 147
cgttatctgt gaaagtgcgg ggggtccagga ggacgcggcg agcctgagag ccttcacgga 60
ggctatgacc aggtactccg ccccccccg ggacccccca caaccagaat acgacttgga 120
gcttataaca tcatgctcct ccaacgtgtc agtcgcccac gacggcgctg gaaagagggg 180
ctactacctt acccgtgacc ctacaacccc cctcgcgaga gccgcgtggg agacagcaag 240
acacactcca gtcaattcct ggctaggcaa cataatcatg tttgccccca caotgtgggc 300
gaggatgata ctgatgaccc atttctttag cgtcctcata gccagggatc agcttgaaca 360
ggctcttaac tgtgagatct ac 382

```

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<210> 148
<211> 268
<212> DNA
<213> Hepatitis C virus

```

```

<400> 148
tcgtgtcagtc gcccacgacg gcgctggaaa gaggggtctac taccttaccg gtgaccctac 60
taacccccctc gcgagagccg cgtgggagac agcaagacac actccagtca attcctggct 120
aggcaacata atcatgtttg cccccacact gtgggagcagg atgatactga tgaccattt 180
cttttagcgtc ctcatagcca gggatcagct tgaacaggct cttaactgtg agatctacgg 240
agcctgctac tccatagaac cactggat 268

```

```

<210> 149
<211> 222
<212> DNA
<213> Hepatitis C virus

```

```

<400> 149
actccatggc ctcagcgcac ttctactcca cagttactct ccagggtgaaa tcaatagggt 60
ggccgcatgc ctcagaaaac ttgggggtccc gcccttgcca gcttggagac accgggcccc 120
gagcgccgc gctaggcttc tgtccagagg aggcagggt gccatatgtg gcaagtacct 180
cttcaactgg gcagtaagaa caaagctcaa actcactcca at 222

```

```

<210> 150
<211> 192
<212> DNA
<213> Hepatitis C virus

```

```

<400> 150
ctctccaggt gaaatcaata gggtagccgc atgcctcaga aaacttgggg tcccgcctt 60
gcgagcttgg agacaccggg cccggagcgt ccgcgctagg cttctgtcca gaggaggcag 120
ggctgccata tgtggcaagt acctcttcaa ctgggcagta agaacaaagc tcaaactcac 180
tccaatagcg gc 192

```

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<210> 151
<211> 10
<212> DNA

```

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: linker
sequence

<400> 151
gggccacgaa

10

<210> 152

<211> 13

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: linker
sequence

<400> 152
ttcgtggccc ctg

13

<210> 153
<211> 138
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: pP6 vector
sequence

<400> 153
ctagccatgg cgcaggggc cgcggccgca ctagtgggga tccttaatta aagggccact 60
ggggccccc gtaccggcgt ccccggcgcc ggcgtgatca cccctaggaa ttaatttccc 120
ggtgacccc ggggagct 138

<210> 154

<211> 128

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pB5 vector
sequence

<400> 154
catggccgca ggggccgcgg ccgcactagt ggggatcctt aattaaaggg ccactggggc 60
ccccggcgt ccccggcgcc ggcgtgatca cccctaggaa ttaatttccc ggtgacccc 120
ggggagct 128

<210> 155

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 155
gcgtttggaa tcactacagg

20

<210> 156
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 156
cacgatgcac gttgaagtg

19

TEEBB"BBB"BBB